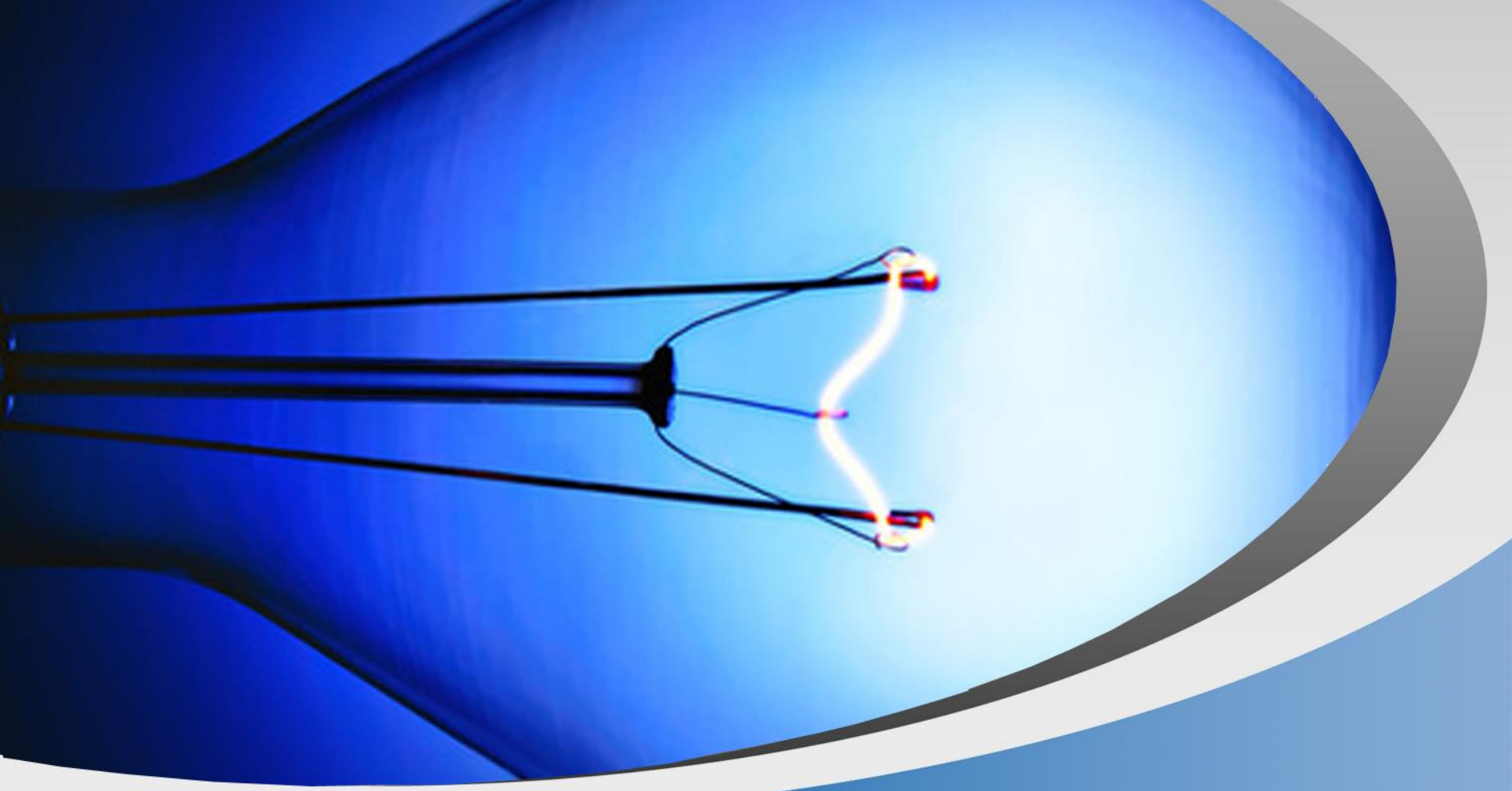

SystemC CCI WG
Tracing Parameter Activity

P V S Phaneendra, CircuitSutra Technologies Pvt. Ltd.
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Tracing Parameter Activity

- **Objective of the present example is to demonstrate the following :**
  - Configurator perspective: show how to use the parameter creation callback
  - Report the creation and modification of parameters

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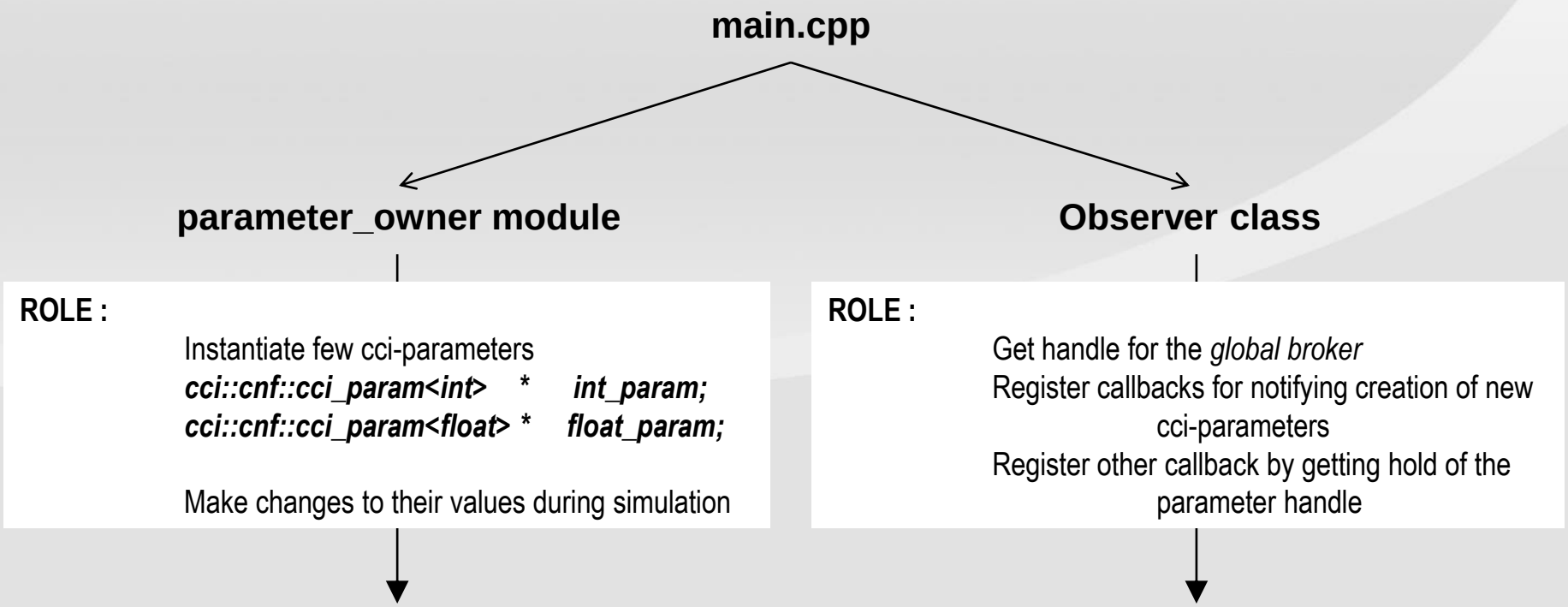
Example Illustration (1)

main.cpp (*testbench file*)

- Initialize and register global broker
  cci::cci_register_broker(new cci_utils::broker("My Global Broker"));
- Instantiate the *observer* class (which registers various callbacks to trace cci-parameters activities)
- Later, instantiate the *parameter_owner* module

observer observer_inst; // A simple C++ Class
parameter_owner param_owner("param_owner"); // Parameter Owner module



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Example Illustration (2)

parameter_owner module

Observer class

Within Constructors

Get global broker handle

```
cci::cnf::cci_originator observer_originator("observer");
cci::cci_broker_handle(cci::cci_get_global_broker(observer_originator));
```

Register a callback to notify the creation of cci-parameters of the parameter_owner modules

```
m_broker.register_create_callback(
        sc_bind(&ex20_observer::config_new_param_callback,
                this,
                sc_unnamed::_1));
```


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Example Illustration (3)

parameter_owner module

Within Constructors

Observer class

Various other callbacks registration

Within the callback implementation of the ***config_new_param_callback*** function, register other callback functions for monitoring *read, write* activities on to the cci-parameter

```
// Get reference of newly created cci-parameters
   observer_base_handle = m_broker.get_param_handle(param_handle.name());

// Register pre-read, pre/post-write callbacks
   observer_cb.push_back(observer_base_handle.register_pre_read_callback(
         &ex20_observer::pre_read_callback,this));

   observer_cb.push_back(observer_base_handle.register_pre_write_callback(
         &ex20_observer::pre_write_callback,this));

   observer_cb.push_back(observer_base_handle.register_post_write_callback(
         &ex20_observer::post_write_callback,this));
```


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Example Illustration (4)

parameter_owner module

Within Constructors

Observer class

Set default value to the integer-type cci-parameter

int_param = new cci::cnf::cci_param<int>("int_param", 10);

Reports :

int_param cci-parameter has been created

Retrieves :

Handle for the 'int_param' cci-parameter and stores it to new_param_handle

Registers :

pre_read callback using *new_param_handle*
pre_write callback using new_param_handle
post_write callback using new_param_handle

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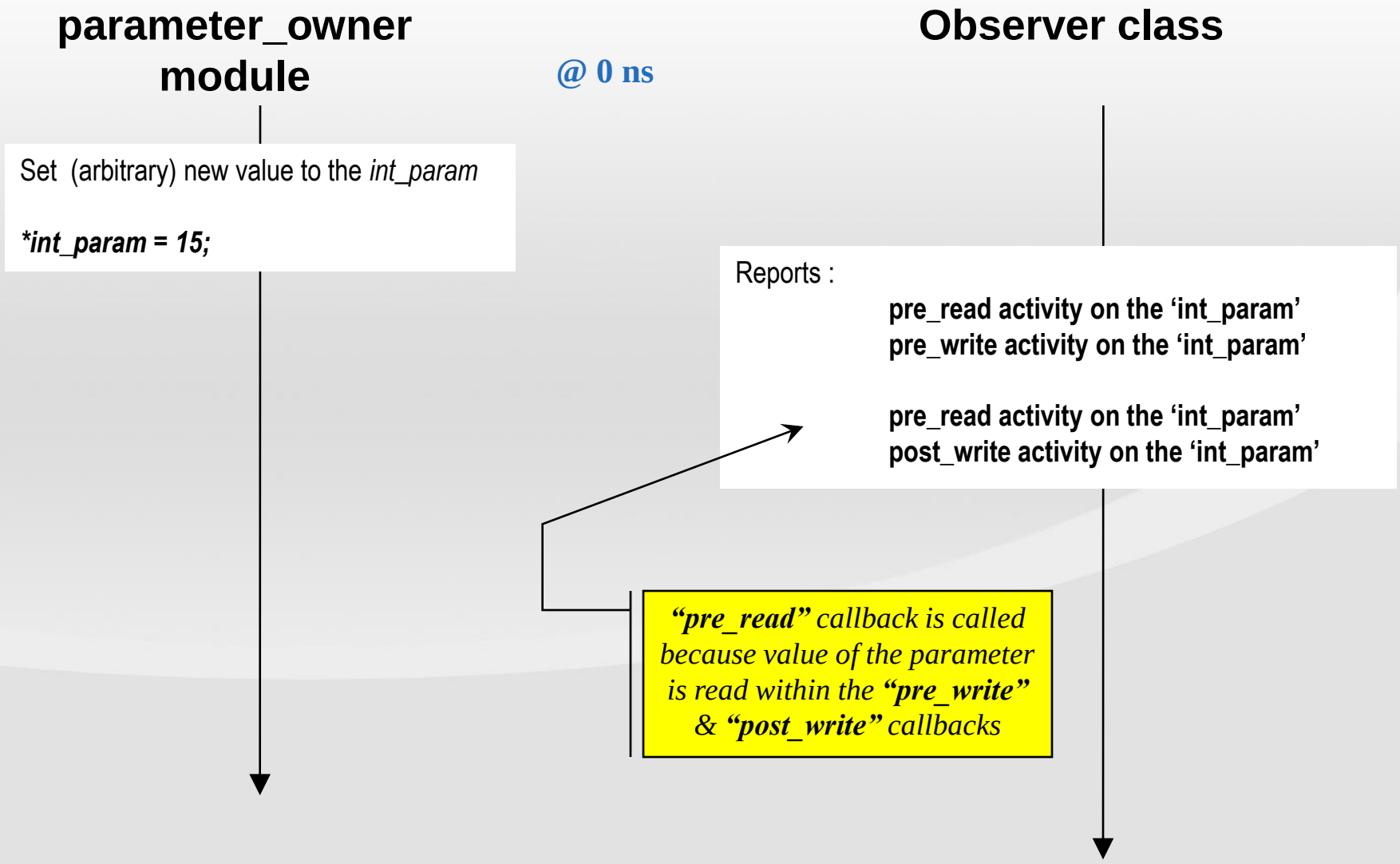
Example Illustration (5)



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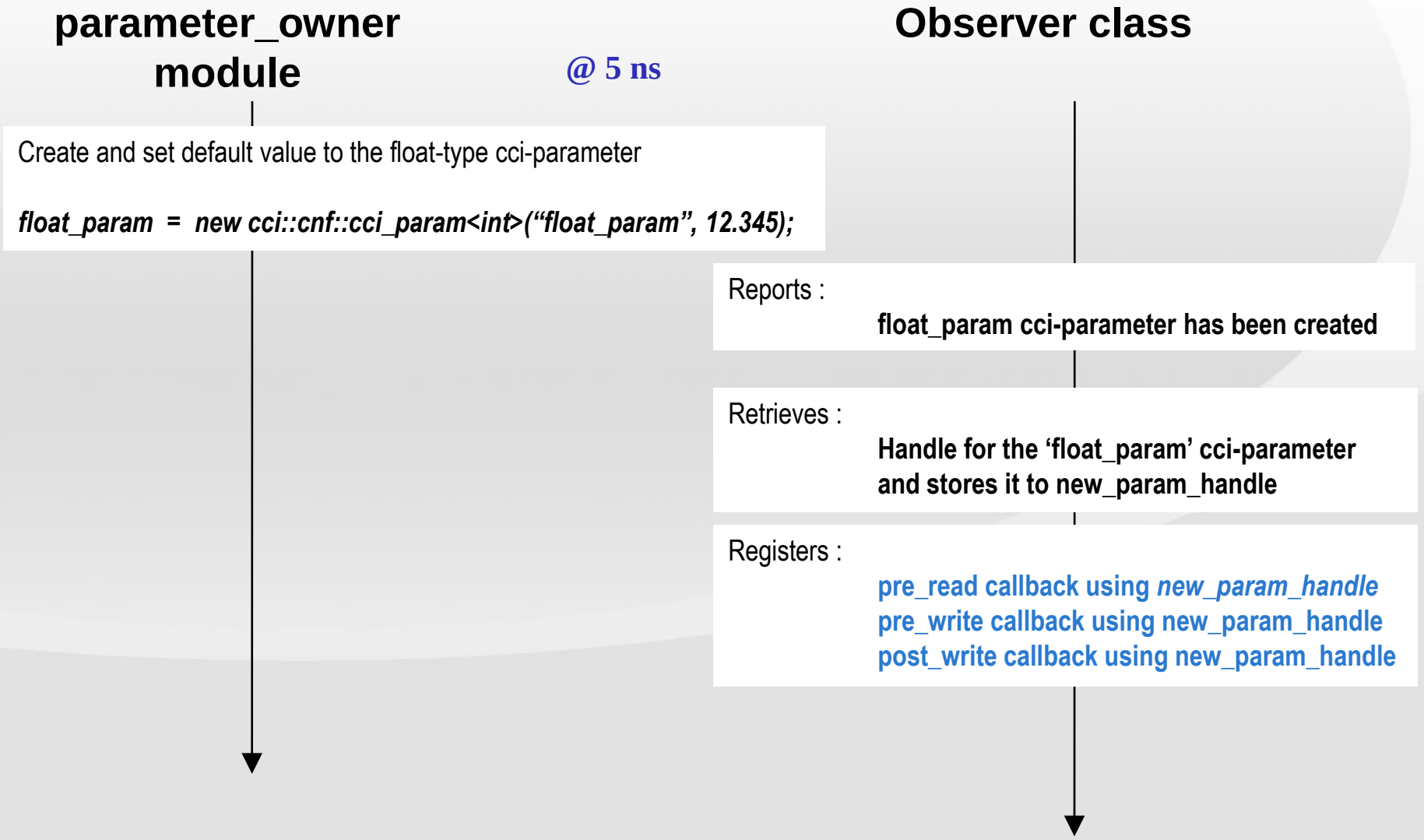
Example Illustration (6)



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Expected Output
(ex20_Tracing_Parameter_Activity.log)

```
SystemC Simulation
Info: param_owner: @0 s, Prior to 0 s
Info: param_owner: @0 s, [OWNER C_TOR] : Creating new integer type cci-parameter with default value 10
          [OBSERVER - create_param_cb] : Retrieving handle for newly created cci_parameter
          [OBSERVER - create_param_cb] : Parameter Name : param_owner.int_param       has been
created.
          [OBSERVER - create_param_cb] : Parameter Value : 10
          [OBSERVER - create_param_cb] : Registering other callbacks on the newly created cci-
parameters
Info: sc_main: Begin Simulation.
Info: param_owner: @0 s, @ 0 s
Info: param_owner: @0 s, [OWNER] : Setting new value to the 'int' type param to '15'
          [OBSERVER - pre_write_cb] : Retrieving details of new cci-parameter
          [OBSERVER - pre_write_cb] : Parameter Name : param_owner.int_param          Parameter Value
: 15
          [OBSERVER - post_write_cb] : Retrieving details of new cci-parameter
          [OBSERVER - post_write_cb] : Parameter Name : param_owner.int_param         Parameter Value
: 15
Info: param_owner: @5 ns, @ 5 ns
```


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Cont’d

```
Info: param_owner: @5 ns, [OWNER] : Creating new 'double' type cci-parameter with default value :
12.345
          [OBSERVER - create_param_cb] : Retrieving handle for newly created cci_parameter
          [OBSERVER - create_param_cb] : Parameter Name : param_owner.double_param    has been
created.
          [OBSERVER - create_param_cb] : Parameter Value : 12.345
          [OBSERVER - create_param_cb] : Registering other callbacks on the newly created cci-
parameters
Info: sc_main: End Simulation.
```


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